

Example Problem 6A-10_1: Designing an Intersection with a Painted Stop Sign Island

Design an intersection to accommodate the turning path of a semi-truck with a stop sign island.

Given:

Perpendicular intersection between two-lane roadways.

Two-way stop controlled intersection.

Intersection design vehicle – WB-67.

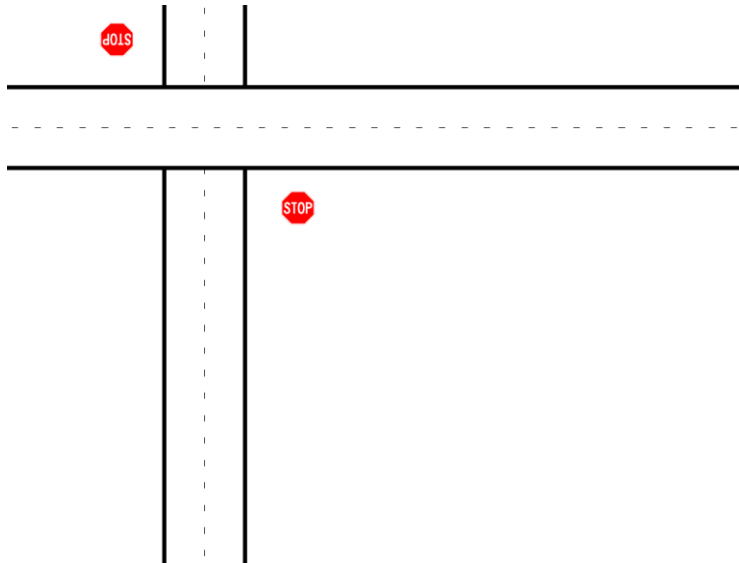


Figure 1: Intersection with two-way stop control.

Solution:

A. Design the island

1. Locate the face of the island near the mainline and approach lane.

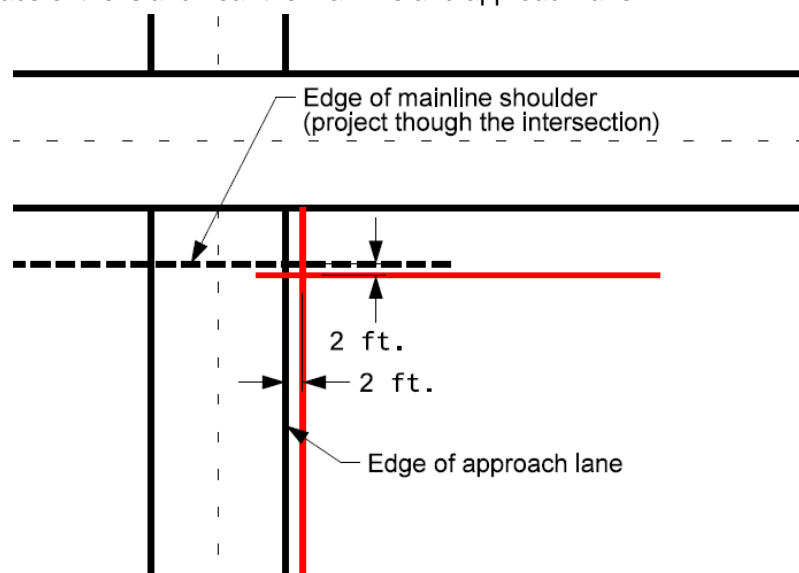


Figure 2: Offsets to island.

2. Design the edge of the island near the mainline.

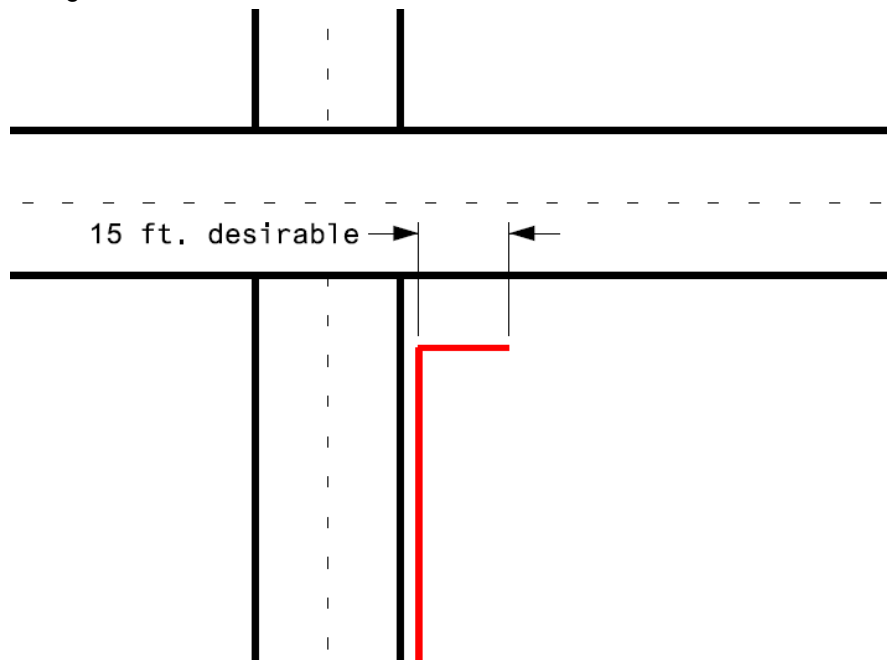


Figure 3: Side of an island with a desirable dimension.

3. Determine the angle of the island pointed down the mainline.

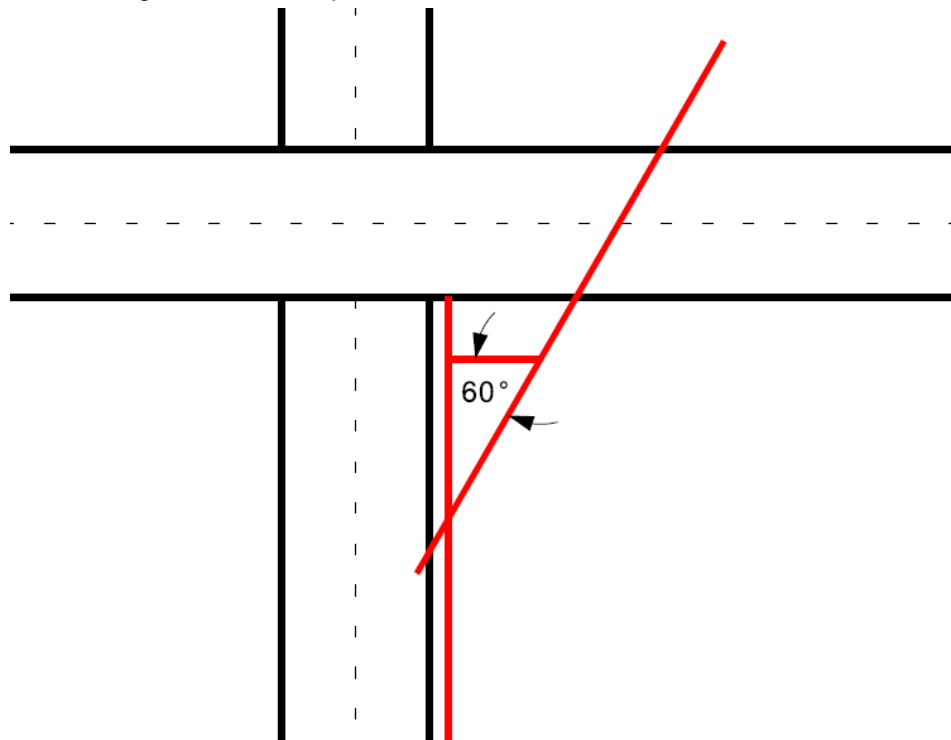


Figure 4: Interior angle pointed down the cross street.

4. Intersect lines to design the island. Check the area and clearance to the sign(s) within the island.

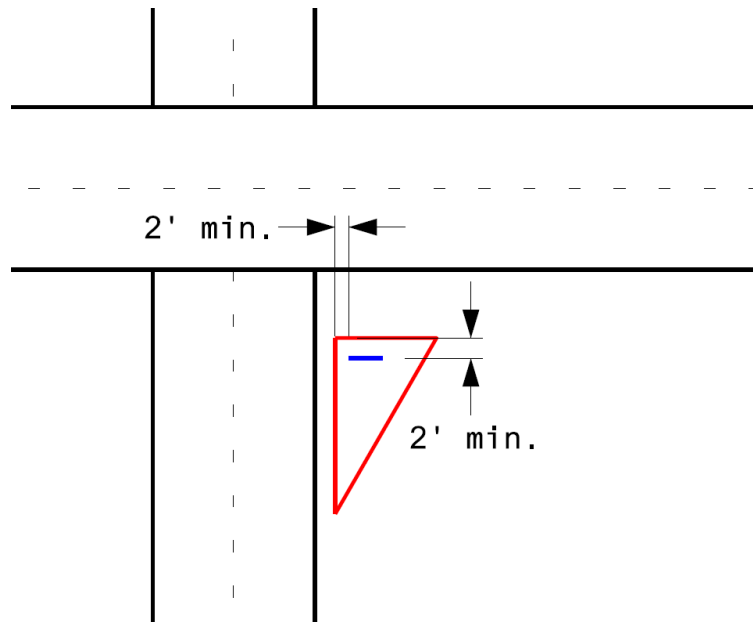


Figure 5: Offsets from the island to the sign.

B. Design the edge return

1. Create the vehicle path.

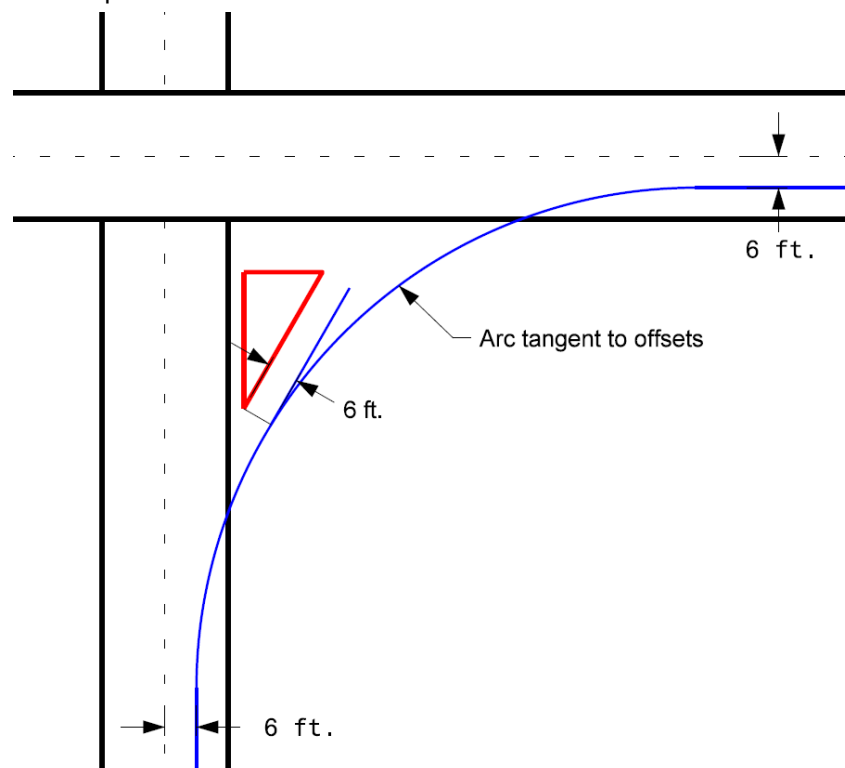


Figure 6: Turning path offsets and arc tangent to the offsets.

Discussion: When determining the offset from the island, the designer should use a distance equal to $\frac{1}{2}$ the design vehicle width plus an additional 2 feet, as the minimum distance.

To develop the turning path, the designer can place tangent to each offset.

2. Simulate the selected path and check offset to the island.

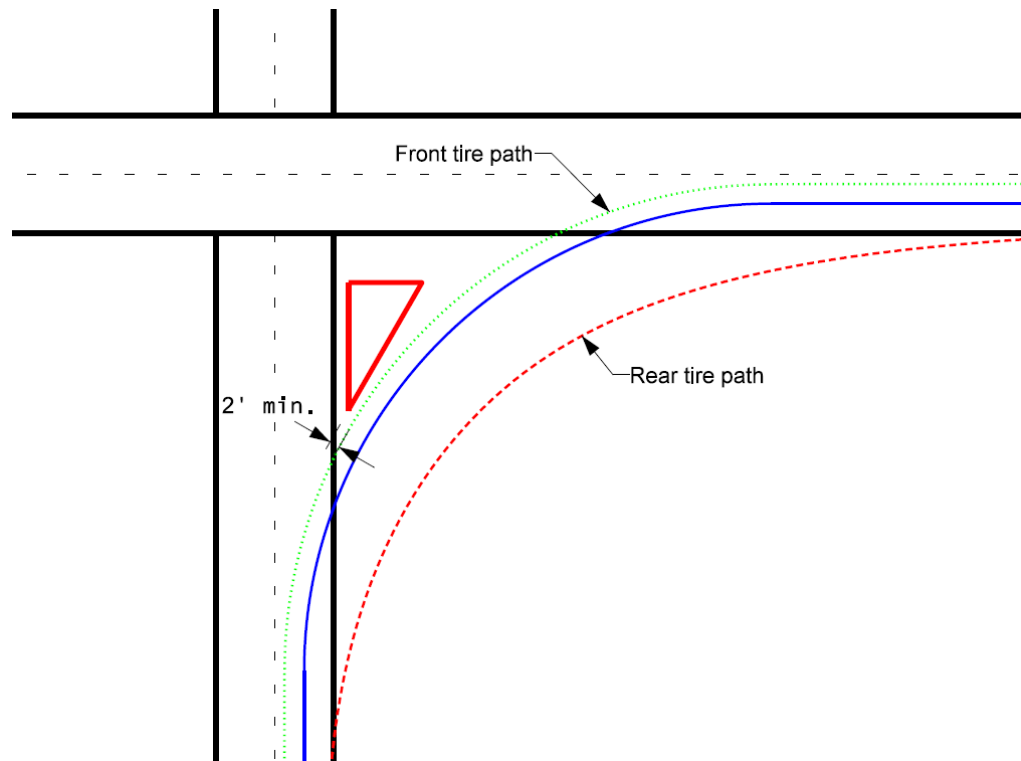


Figure 7: Design vehicle path with offset to the island.

3. Design the edge return.

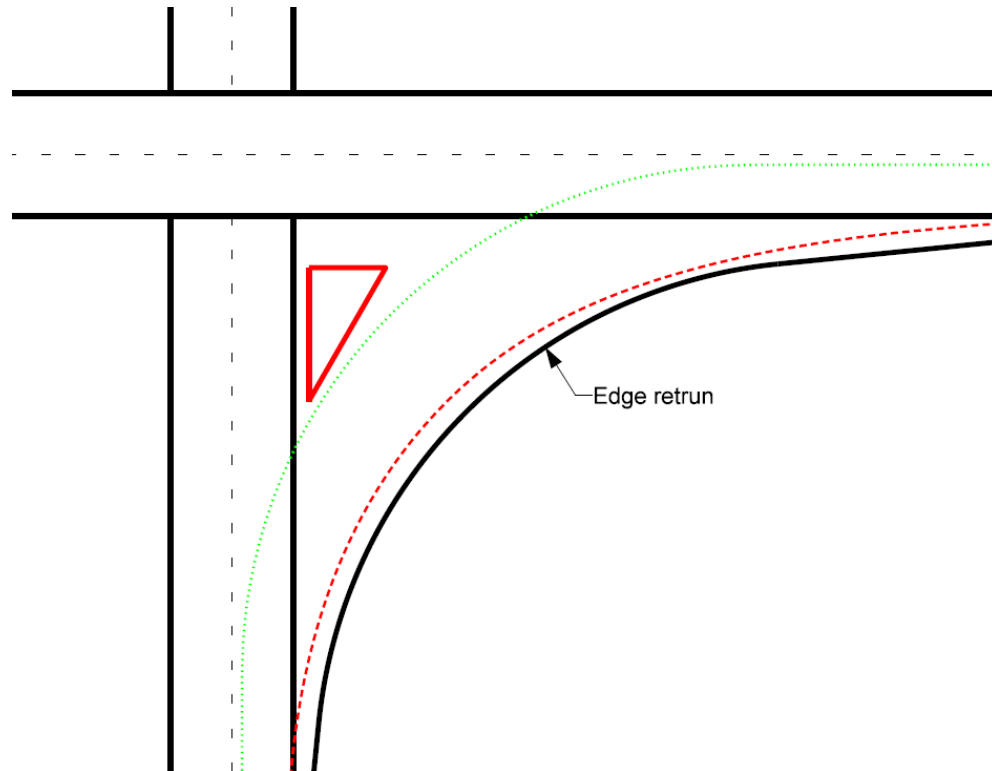


Figure 8: Edge return for the intersection.